

Appl. No. 10/717,141  
Filed November 19, 2003

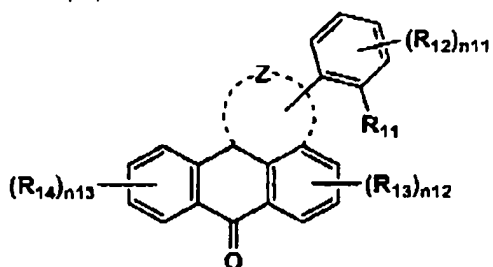
This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A dye represented by the following formula

(1):

formula (1)



wherein Z is an atomic group necessary to form a 6-membered nitrogen containing aromatic ring;  $R_{11}$  is a hydrogen bonding group;  $R_{12}$ ,  $R_{13}$  and  $R_{14}$  are independently a hydrogen atom or a substituent;  $n_{11}$  and  $n_{13}$  are each an integer of 1 to 4;  $n_{12}$  is an integer of 1 to 3.

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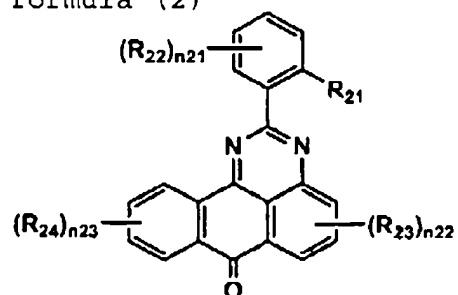
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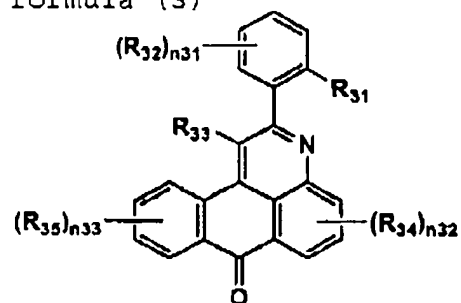
2. (Original) The dye of claim 1, wherein the dye represented by formula (1) is a dye represented by the following formula (2), (3), (4), (5), (6) or (7):

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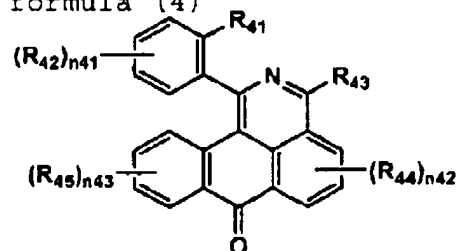
formula (2)



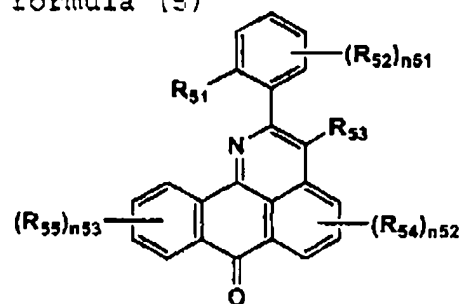
formula (3)



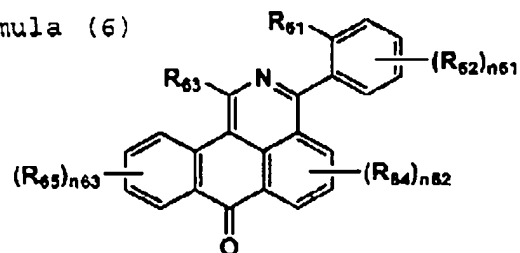
formula (4)



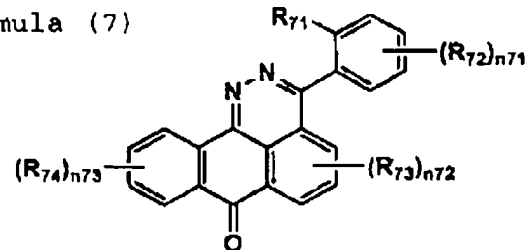
formula (5)



formula (6)



formula (7)



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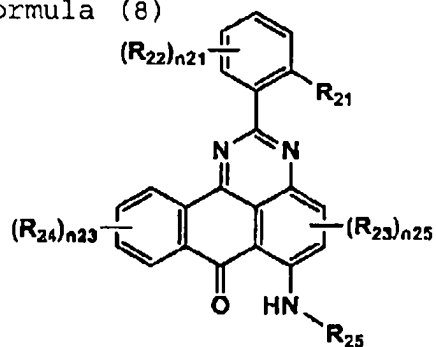
wherein  $R_{21}$ ,  $R_{31}$ ,  $R_{41}$ ,  $R_{51}$ ,  $R_{61}$  and  $R_{71}$  are each a hydrogen bonding atom;  $R_{22}$ ,  $R_{23}$ ,  $R_{24}$ ,  $R_{32}$ ,  $R_{33}$ ,  $R_{34}$ ,  $R_{15}$ ,  $R_{42}$ ,  $R_{43}$ ,  $R_{44}$ ,  $R_{45}$ ,  $R_{52}$ ,  $R_{53}$ ,  $R_{54}$ ,  $R_{55}$ ,  $R_{62}$ ,  $R_{63}$ ,  $R_{64}$ ,  $R_{65}$ ,  $R_{72}$ ,  $R_{73}$ , and  $R_{74}$  are independently a hydrogen atom or a substituent;  $n_{21}$ ,  $n_{23}$ ,  $n_{31}$ ,  $n_{33}$ ,  $n_{41}$ ,  $n_{43}$ ,  $n_{51}$ ,  $n_{53}$ ,  $n_{61}$ ,  $n_{63}$ ,  $n_{71}$  and  $n_{73}$  are each an integer of 1 to 4;  $n_{22}$ ,  $n_{32}$ ,  $n_{42}$ ,  $n_{52}$ ,  $n_{62}$  and  $n_{72}$  are each an integer of 1 to 3.

3. (Original) The dye of claim 2, wherein the dye represented by formula (1) is a dye represented by formula (2) or (3).

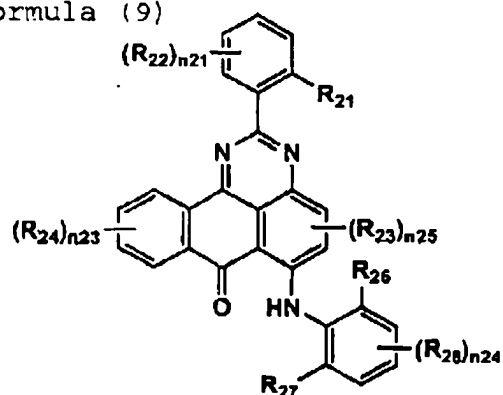
4. (Original) The dye of claim 3, wherein the dye represented by formula (2) is a dye represented by the following formulas (8) or (9), and the dye represented by formula (3) is a dye represented by the following formulas (10) or (11):

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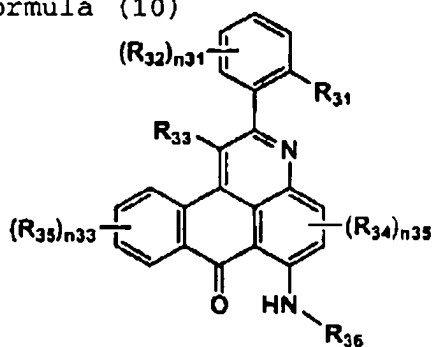
formula (8)



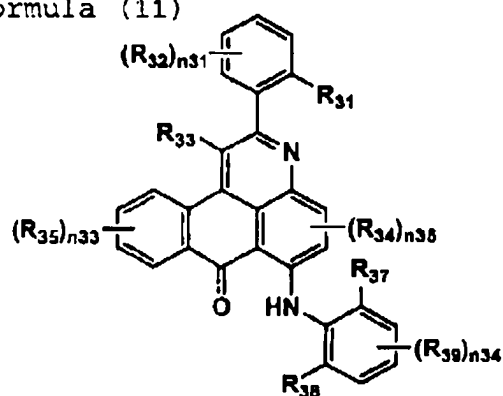
formula (9)



formula (10)



formula (11)

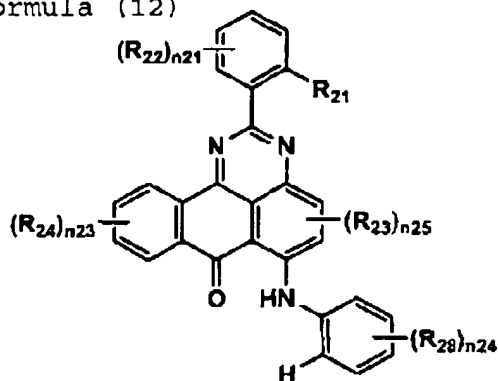


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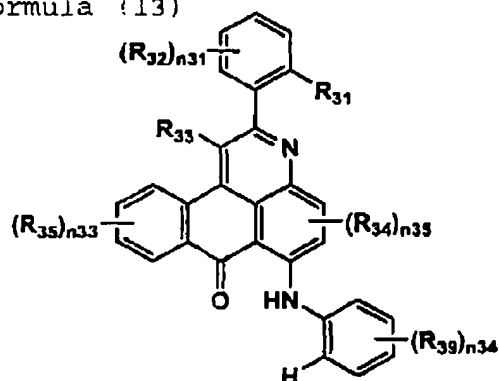
wherein  $R_{21}$  and  $R_{31}$  are independently a hydrogen bonding group;  
 $R_{22}$ ,  $R_{23}$ ,  $R_{24}$ ,  $R_{28}$ ,  $R_{32}$ ,  $R_{33}$ ,  $R_{34}$ ,  $R_{35}$  and  $R_{36}$  are independently a hydrogen atom or a substituent;  $R_{26}$ ,  $R_{27}$ ,  $R_{37}$  and  $R_{38}$  are independently a substituent;  $n_{21}$ ,  $n_{23}$ ,  $n_{31}$  and  $n_{33}$  are each an integer of 1 to 4;  $n_{24}$  and  $n_{34}$  are each an integer of 1 to 3;  $n_{25}$  and  $n_{35}$  are each an integer of 1 or 2;  $R_{25}$  and  $R_{36}$  are independently a group having a Hammett substituent constant ( $\sigma$ ) of 0.3 to 1.0.

5. (Original) The dye of claim 3, wherein the dye represented by formula (2) is a dye represented by the following formula (12), and the dye represented by formula (3) is a dye represented by the following formula (13):

formula (12)



formula (13)



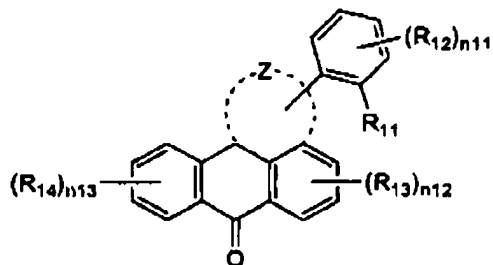
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wherein  $R_{21}$  and  $R_{31}$  are independently a hydrogen bonding group;  
 $R_{32}$ ,  $R_{33}$ ,  $R_{24}$ ,  $R_{25}$ ,  $R_{12}$ ,  $R_{13}$ ,  $R_{14}$ ,  $R_{35}$  and  $R_{39}$  are independently a  
hydrogen atom or a substituent;  $n_{21}$ ,  $n_{23}$ ,  $n_{24}$ ,  $n_{31}$ ,  $n_{33}$ , and  $n_{34}$   
are each an integer of 1 to 4;  $n_{25}$  and  $n_{35}$  is an integer of 1  
or 2.

6. (Currently Amended) An ink for ink jet printing  
comprising a dye represented by the following formula (1) and a  
solvent:

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formula (1)



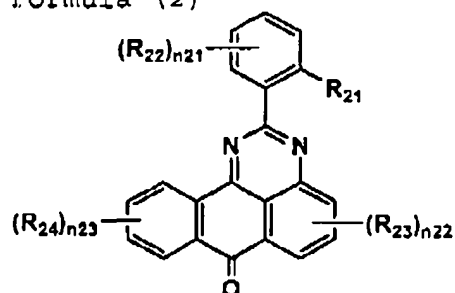
wherein Z is an atomic group necessary to form a 6-membered nitrogen containing aromatic ring;  $R_{11}$  is a hydrogen bonding group;  $R_{12}$ ,  $R_{13}$ , and  $R_{14}$  are independently a hydrogen atom or a substituent;  $n11$  and  $n13$  are each an integer of 1 to 4;  $n12$  is an integer of 1 to 3.

7. (Original) The ink of claim 6, wherein the dye represented by formula (1) is a dye represented by the following formula (2), (3), (4), (5), (6) or (7):

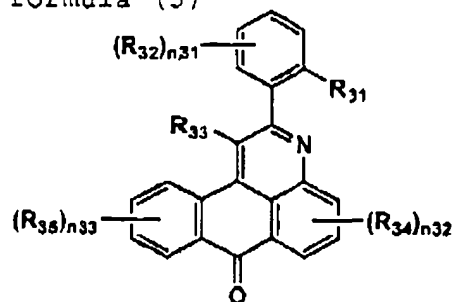


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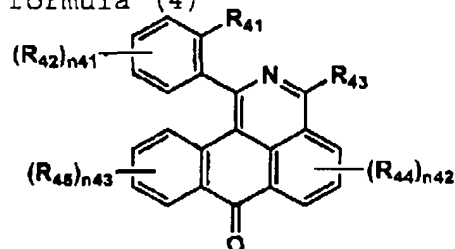
formula (2)



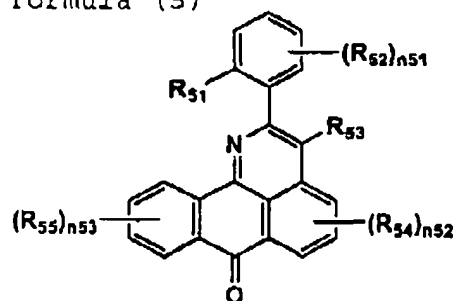
formula (3)



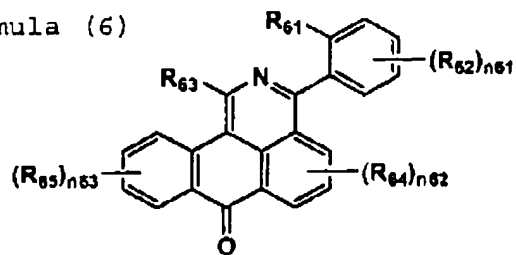
formula (4)



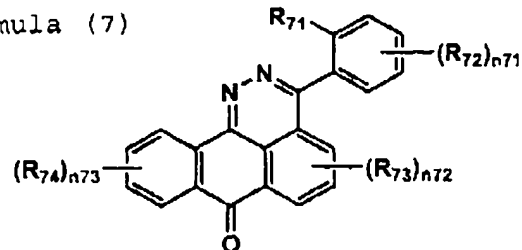
formula (5)



formula (6)



formula (7)



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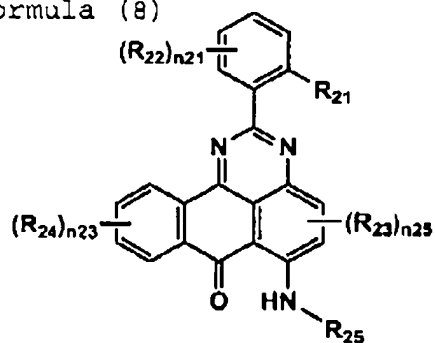
wherein  $R_{21}$ ,  $R_{31}$ ,  $R_{41}$ ,  $R_{51}$ ,  $R_{61}$  and  $R_{71}$  are each a hydrogen bonding atom;  $R_{22}$ ,  $R_{23}$ ,  $R_{24}$ ,  $R_{32}$ ,  $R_{33}$ ,  $R_{34}$ ,  $R_{35}$ ,  $R_{42}$ ,  $R_{43}$ ,  $R_{44}$ ,  $R_{45}$ ,  $R_{52}$ ,  $R_{53}$ ,  $R_{54}$ ,  $R_{55}$ ,  $R_{62}$ ,  $R_{63}$ ,  $R_{64}$ ,  $R_{65}$ ,  $R_{72}$ ,  $R_{73}$ , and  $R_{74}$  are independently a hydrogen atom or a substituent;  $n_{21}$ ,  $n_{23}$ ,  $n_{31}$ ,  $n_{33}$ ,  $n_{41}$ ,  $n_{43}$ ,  $n_{51}$ ,  $n_{53}$ ,  $n_{61}$ ,  $n_{63}$ ,  $n_{71}$  and  $n_{73}$  are each an integer of 1 to 4;  $n_{22}$ ,  $n_{32}$ ,  $n_{42}$ ,  $n_{52}$ ,  $n_{62}$  and  $n_{72}$  are each an integer of 1 to 3.

8. (Original) The ink of claim 7, wherein the dye represented by formula (1) is a dye represented by formula (2) or (3).

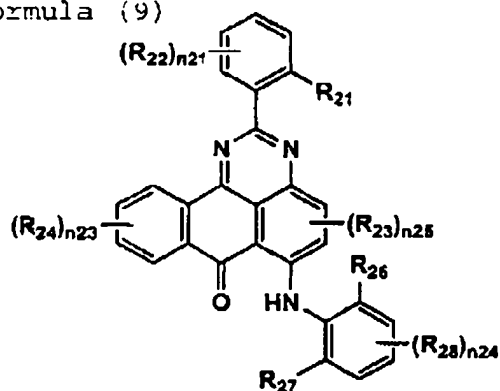
9. (Original) The ink of claim 8, wherein the dye represented by formula (2) is a dye represented by the following formulas (8) or (9), and the dye represented by formula (3) is a dye represented by the following formulas (10) or (11):

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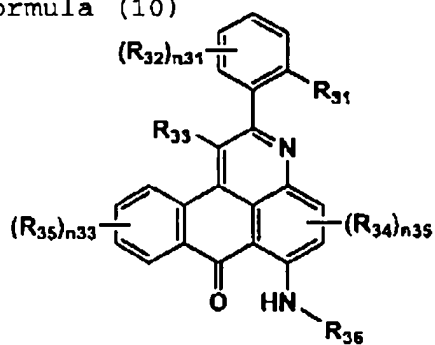
formula (8)



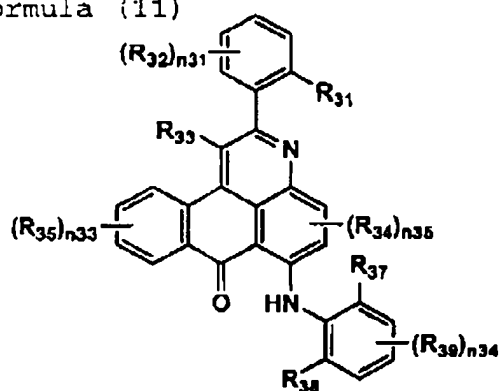
formula (9)



formula (10)



formula (11)

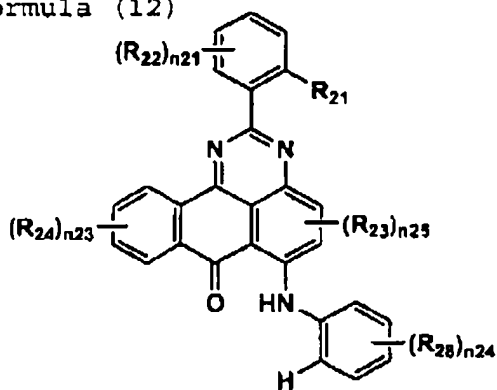


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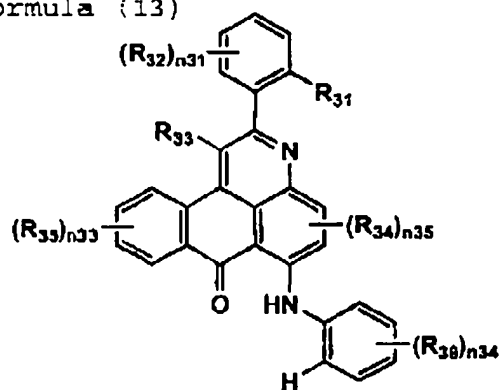
wherein  $R_{21}$  and  $R_{31}$  are independently a hydrogen bonding group;  
 $R_{12}$ ,  $R_{23}$ ,  $R_{24}$ ,  $R_{28}$ ,  $R_{32}$ ,  $R_{33}$ ,  $R_{34}$ ,  $R_{35}$  and  $R_{38}$  are independently a  
hydrogen atom or a substituent;  $R_{26}$ ,  $R_{27}$ ,  $R_{37}$  and  $R_{38}$  are  
independently a substituent;  $n_{21}$ ,  $n_{23}$ ,  $n_{31}$ , and  $n_{33}$  are each an  
integer of 1 to 4;  $n_{24}$  and  $n_{34}$  are each an integer of 1 to 3;  $n_{25}$   
and  $n_{35}$  are each an integer of 1 or 2;  $R_{25}$  and  $R_{36}$  are  
independently a group having a Hammett substituent constant ( $\sigma_p$ )  
of 0.3 to 1.0.

10. (Original) The ink of claim 8, wherein the dye  
represented by formula (2) is a dye represented by the following  
formula (12), and the dye represented by formula (3) is a dye  
represented by the following formula (13):

formula (12)



formula (13)



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wherein  $R_{21}$  and  $R_{31}$  are independently a hydrogen bonding group;  
 $R_{22}$ ,  $R_{23}$ ,  $R_{24}$ ,  $R_{28}$ ,  $R_{32}$ ,  $R_{33}$ ,  $R_{34}$ ,  $R_{35}$  and  $R_{36}$  are independently a  
hydrogen atom or a substituent;  $n_{21}$ ,  $n_{23}$ ,  $n_{24}$ ,  $n_{31}$ ,  $n_{33}$ , and  $n_{34}$   
are each an integer of 1 to 4;  $n_{25}$  and  $n_{35}$  is an integer of 1  
or 2.

11. (Original) The ink of claim 6, wherein in the compound  
represented by formula (1), the molecule contains at least one  
sulfonic acid group or at least one carboxyl group.

12. (Original) The ink of claim 6, wherein the ink  
comprises the dye in the form of fine particle dispersion.

13. (Original) The ink of claim 6, wherein the ink  
comprises the dye together with an oil-soluble polymer in the  
form of fine particle dispersion.